SAF-RC-210
100-IU-2 & 100-IU-6 Miscellaneous Restoration Sites Near 100F - Soil Full Protocol
FINAL VALIDATION PACKAGE

COMPLETE COPY OF FINAL VALIDATION PACKAGE TO:

Kathy Wendt

COMMENTS:

SDG J01506 **SAF-RC-210**

Sample Location: 600-316

Date: 11 July 2012
To: Washington Closure Hanford Inc. (technical representative)
From: ELR Consulting
Project: 100-IU-2 & 100-IU-6 Miscellaneous Restoration Sites Near 100F – Soil Full Protocol – Waste Site 600-316
Subject: Inorganics - Data Package No. J01506-TAL

INTRODUCTION

This memo presents the results of data validation on Data Package No. J01506 prepared by TestAmerica Laboratories (TAL). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analyte
J1P292	5/15/12	Soil	C	See note 1
J1P293	5/15/12	Soil	C	See note 1
J1P294	5/15/12	Soil	C	See note 1

1 - ICP metals (6010B) and mercury by 7471A.

Data validation was conducted in accordance with the Washington Closure Hanford (WCH) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, September 2009). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested by Client

DATA QUALITY PARAMETERS

Holding Times

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 6 months for ICP metals and 28 days for mercury.

All holding times were acceptable.

- **Preparation (Method) Blanks**

Preparation Blanks

At least one preparation blank, consisting of deionized distilled water processed through each sample preparation and analysis procedure, must be prepared and analyzed with every sample delivery group. In the case of positive blank results, samples with digestate concentrations less than five times the preparation blank value have had their associated values qualified as non-detected and flagged "UJ". Samples with concentrations of greater than five times the highest blank concentration do not require qualification.

In the case of negative blank results, if the absolute value exceeds the contract required detection limit (CRDL), all nondetects are rejected and flagged "UR" and all detects that are less than ten times the absolute value of the associated preparation blank result are qualified as estimates and flagged "J". If the absolute value of the negative preparation blank is greater than the instrument detection limit (IDL) and less than or equal to the CRDL, all nondetects are qualified as estimates and flagged "UJ" and all detects less than ten times the absolute value of the blank are qualified as estimates and flagged "J". If the sample results are greater than ten times the absolute value of the preparation blank, no qualification is necessary.

All preparation blank results were acceptable.

Field (Equipment) Blank

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 75% to 125%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a recovery of 30% to 74% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 125% or less than 74% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a recovery greater than 125% and a sample result less than the IDL, no qualification is required.

Due to matrix spike recoveries outside QC limits, all antimony (31%), silicon (-1%) and zinc (144%) results were qualified as estimates and flagged "J".

Due to an LCS recovery outside QC limits, all silicon (17%) results were qualified as estimates and flagged "J".

All other accuracy results were acceptable

- **Precision**

Laboratory Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

Due to RPDs outside QC limits, all lead (183%) and arsenic (182%) results were qualified as estimates and flagged "J".

All other laboratory duplicate results were acceptable.

Field Duplicate

No field duplicates were submitted for analysis.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the 100 Area RQLs to ensure that laboratory detection levels meet the required criteria. All results met the RQL.

- **Completeness**

Data package No. J01506 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

- Due to matrix spike recoveries outside QC limits, all antimony (31%), silicon (-1%) and zinc (144%) results were qualified as estimates and flagged "J".

- Due to an LCS recovery outside QC limits, all silicon (17%) results were qualified as estimates and flagged "J".

- Due to RPDs outside QC limits, all lead (183%) and arsenic (182%) results were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the WCH statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

REFERENCES

Washington Closure Hanford Contract #S00W307A00 (March 2008), *Data Validation Services*, March 2008.

DOE/RL-96-22, Rev. 5, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, September 2009.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with WCH validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.

BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

INORGANICS DATA QUALIFICATION SUMMARY*

SDG: J01506	**REVIEWER: ELR**	**Project: 600-316**	**PAGE 1 OF 1**
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Antimony Silicon Zinc	J	All	MS recovery
Silicon	J	All	LCS recovery
Arsenic Lead	J	All	RPD

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Annotated Laboratory Reports

Client: Washington Closure Hanford

Job Number: 280-28967-1
Sdg Number: J01506

Client Sample ID: J1P292

Lab Sample ID: 280-28967-1
Client Matrix: Solid

% Moisture: 1.2

Date Sampled: 05/15/2012 1120
Date Received: 05/17/2012 0900

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 05/18/2012 2131
Prep Date: 05/18/2012 1400

Analysis Batch: 280-120581
Prep Batch: 280-120257

Instrument ID: MT_025
Lab File ID: 25A3051812.asc
Initial Weight/Volume: 1.02 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		11100	X	1.5	5.0
Antimony		0.38	U J	0.38	0.60
Arsenic		6.4	M J	0.65	0.99
Barium		127	X	0.075	0.50
Beryllium		0.43		0.033	0.20
Boron		3.1		0.97	2.0
Cadmium		0.32		0.041	0.20
Calcium		4320	X	14.0	49.6
Chromium		12.8	X	0.058	0.20
Cobalt		8.4	X	0.099	0.99
Copper		19.7	X	0.22	0.99
Iron		26900	X	3.8	5.0
Lead		20.7	X M J	0.27	0.50
Magnesium		5040	X	3.7	19.8
Manganese		535	X	0.099	0.99
Molybdenum		0.26	U	0.26	2.0
Nickel		12.8	X	0.12	4.0
Potassium		2390	X	40.7	298
Selenium		0.85	U	0.85	0.99
Silicon		538	X N J	5.6	9.9
Silver		0.16	U	0.16	0.20
Sodium		280		58.5	119
Vanadium		57.5	X	0.093	2.0
Zinc		102	X J	0.39	0.99

7471A Mercury (CVAA)

Analysis Method: 7471A
Prep Method: 7471A
Dilution: 1.0
Analysis Date: 05/22/2012 1613
Prep Date: 05/22/2012 1210

Analysis Batch: 280-121070
Prep Batch: 280-120779

Instrument ID: MT_033
Lab File ID: 120522aa.txt
Initial Weight/Volume: 0.53 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.066		0.0063	0.019

Client: Washington Closure Hanford

Job Number: 280-28967-1
Sdg Number: J01506

Client Sample ID: J1P293

Lab Sample ID: 280-28967-2FD
Client Matrix: Solid

% Moisture: 1.0

Date Sampled: 05/15/2012 1120
Date Received: 05/17/2012 0900

6010B Metals (ICP)

Analysis Method: 6010B
Prep Method: 3050B
Dilution: 1.0
Analysis Date: 05/18/2012 2141
Prep Date: 05/18/2012 1400

Analysis Batch: 280-120581
Prep Batch: 280-120257

V 7/10/12

Instrument ID: MT_025
Lab File ID: 25A3051812.asc
Initial Weight/Volume: 1.01 g
Final Weight/Volume: 100 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		11500	X	1.6	5.0
Antimony		0.38	U J	0.38	0.60
Arsenic		6.6	J	0.66	1.0
Barium		128	X	0.076	0.50
Beryllium		0.44		0.033	0.20
Boron		2.7		0.98	2.0
Cadmium		0.34		0.041	0.20
Calcium		4410	X	14.1	50.0
Chromium		13.5	X	0.058	0.20
Cobalt		8.3	X	0.10	1.0
Copper		18.1	X	0.22	1.0
Iron		25200	X	3.8	5.0
Lead		26.9	X J	0.27	0.50
Magnesium		5110	X	3.7	20.0
Manganese		431	X	0.10	1.0
Molybdenum		0.26	U	0.26	2.0
Nickel		12.7	X	0.12	4.0
Potassium		2490	X	41.0	300
Selenium		0.86	U	0.86	1.0
Silicon		686	X J	5.7	10.0
Silver		0.16	U	0.16	0.20
Sodium		282		59.0	120
Vanadium		54.9	X	0.094	2.0
Zinc		112	X J	0.40	1.0

7471A Mercury (CVAA)

Analysis Method: 7471A
Prep Method: 7471A
Dilution: 1.0
Analysis Date: 05/22/2012 1621
Prep Date: 05/22/2012 1210

Analysis Batch: 280-121070
Prep Batch: 280-120779

Instrument ID: MT_033
Lab File ID: 120522aa.txt
Initial Weight/Volume: 0.54 g
Final Weight/Volume: 50 mL

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.076		0.0062	0.019

Client: Washington Closure Hanford

Job Number: 280-28967-1
Sdg Number: J01506

Client Sample ID: **J1P294**

Lab Sample ID: 280-28967-3EB
Client Matrix: Solid

% Moisture: 0.0

Date Sampled: 05/15/2012 1130
Date Received: 05/17/2012 0900

6010B Metals (ICP)

Analysis Method:	6010B	Analysis Batch:	280-120581	Instrument ID:	MT_025
Prep Method:	3050B	Prep Batch:	280-120257	Lab File ID:	25A3051812.asc
Dilution:	1.0			Initial Weight/Volume:	1.01 g
Analysis Date:	05/18/2012 2143			Final Weight/Volume:	100 mL
Prep Date:	05/18/2012 1400				

V 7/10/12

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Aluminum		331	X	1.5	5.0
Antimony		0.38	U J	0.38	0.59
Arsenic		0.65	U J	0.65	0.99
Barium		3.6	X	0.075	0.50
Beryllium		0.16	B	0.033	0.20
Boron		0.97	U	0.97	2.0
Cadmium		0.041	U	0.041	0.20
Calcium		53.5	X	14.0	49.5
Chromium		0.38	X	0.057	0.20
Cobalt		0.55	B X	0.099	0.99
Copper		0.79	B X	0.21	0.99
Iron		3400	X	3.8	5.0
Lead		1.4	X J	0.27	0.50
Magnesium		42.8	X	3.7	19.8
Manganese		45.9	X	0.099	0.99
Molybdenum		0.26	U	0.26	2.0
Nickel		0.41	B X	0.12	4.0
Potassium		69.8	B X	40.6	297
Selenium		0.85	U	0.85	0.99
Silicon		180	X J	5.6	9.9
Silver		0.16	U	0.16	0.20
Sodium		58.4	U	58.4	119
Vanadium		1.2	B X	0.093	2.0
Zinc		6.0	X J	0.39	0.99

7471A Mercury (CVAA)

Analysis Method:	7471A	Analysis Batch:	280-121070	Instrument ID:	MT_033
Prep Method:	7471A	Prep Batch:	280-120779	Lab File ID:	120522aa.txt
Dilution:	1.0			Initial Weight/Volume:	0.58 g
Analysis Date:	05/22/2012 1623			Final Weight/Volume:	50 mL
Prep Date:	05/22/2012 1210				

Analyte	DryWt Corrected: Y	Result (mg/Kg)	Qualifier	MDL	RL
Mercury		0.0057	U	0.0057	0.018

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

CASE NARRATIVE

Client: Washington Closure Hanford

Project: WASHINGTON CLOSURE HANFORD

Report Number: 280-28967-1

SDG #: J01506
SAF#: RC-210

Date SDG Closed: May 17, 2012
Data Deliverable: 21 Day / Summary

CLIENT ID	LAB ID	ANALYSES REQUESTED	ANALYSES PERFORMED
J1P292	280-28967-1	6010B/7471/1311-6010-7470	6010B/7471A/1311
J1P293	280-28967-2	6010B/7471/1311-6010-7470	6010B/7471A/1311
J1P294	280-28967-3	6010B/7471/1311-6010-7470	6010B/7471A/1311

I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed in this Case Narrative. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the signature on the Report Cover.

With exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. All laboratory quality control samples analyzed in conjunction with the samples in this project were within established control limits, with any exceptions noted. Calculations are performed before rounding to avoid round-off errors in calculated results.

This report includes reporting limits (RLs) less than TestAmerica Denver's practical quantitation limits. These reporting limits are being used specifically at the client's request to meet the needs of this project. Please note that data are not normally reported to these levels without qualification, since they are inherently less reliable and potentially less defensible than required by the current NELAC standards.

The results, RLs and MDLs included in this report have been adjusted for dry weight, as appropriate.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 5/17/2012 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.4° C.

Samples requesting TCLP Metals 1311/6010B/7470A analysis were leached and placed on hold, as instructed on the chain-of-custody. On 6/6/2012, the client instructed the laboratory to cancel the requested TCLP Metals 1311/6010B/7470A analyses.

TOTAL METALS - SW846 6010B/7471A
Serial dilution of a digestate in batch 280-120257 indicates that physical and chemical interferences are present for several elements. Results have been flagged with an "X".

It can be noted that the sample amount was greater than four times the spike amount for Aluminum, Iron and Manganese in the Matrix Spike performed on sample J1P292; therefore, control limits are not applicable.

Silicon was recovered outside the control limits in the Matrix Spike performed on sample J1P292, and the associated sample result has been flagged "N". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

The duplicate analysis of sample J1P292 exhibited RPD data outside the control limits for Arsenic and Lead, and the associated sample results have been flagged "M". There is no indication that the analytical system was operating out of control, and method accuracy has been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

Washington Closure Hanford	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		RC-210-027	Page 1 of 1
Collector MOORE, BR	Company Contact Joan Kessner	Telephone No. (509) 375-4688	Project Coordinator KESSNER, JH	Price Code ~~8C~~ 8D JR 5/15/12
Project Designation 100-IU-2 & 100-IU-6 Miscellaneous Restoration Sites Near 1	Sampling Location 600-316:2		SAF No. RC-210	Data Turnaround ~~15 Days~~ 21 Days JR 5/15/12
Ice Chest No. RCC-07-011	Field Logbook No. EL-1651-03	COA 0603162000	Method of Shipment FedEx	
Shipped To TestAmerica Incorporated, Richland (Denver)	Offsite Property No. A110376		Bill of Lading/Air Bill No. See OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS													
None	Preservation	Cool 4C											
Special Handling and/or Storage *Cool 4C*	Type of Container	G/P											
	No. of Container(s)	1 JR 5/15/12											
	Volume	~~60mL~~ 250 mL											
SAMPLE ANALYSIS	See item (1) in Special Instructions.	⊛											
Sample No.	Matrix *	Sample Date	Sample Time										
J1P292	SOIL	5-15-12	1120	X									1
J1P293	SOIL	5-15-12	1120	X									DUP
J1P294	SOIL	5-15-12	1130	X									EB

Page 25 of 27

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Brad Moore	5-15-12 1150	Jen Russell Jen Russell	5/15/12 1150
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Jen Russell Jen Russell	5/15/12 1430	Fridge DAVID W. SHEA DWShea	5/15/12 1430
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fridge DWShea	5/15/12 1543	Bingham	5-15-12 1543
Relinquished By/Received By	Date/Time	Received By/Stored In	Date/Time
Matt	5-16-12 1000	Fed Ex	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
			5/17/12 900
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010TR (Close-out List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7471 - (CV) {Mercury}

⊛ Please leach & hold TCLP Metals, per Joan Kessner. JR 5/15/12

SDG J01506

REVIEWED BY AJ DATE 5-16-12

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

WCH-EE-011

Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	600-314		DATA PACKAGE:	J01506	
VALIDATOR:	ELR	LAB:	TH	DATE:	8/1/12
			SDG:	J01506	

ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		

SAMPLES/MATRIX

J1P252 J1P253 J1P254

Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes No N/A

Comments:_____

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations performed on all instruments? ..... Yes No N/A

Initial calibrations acceptable? ..... Yes No N/A

ICP interference checks acceptable? ..... Yes No N/A

ICV and CCV checks performed on all instruments? ..... Yes No N/A

ICV and CCV checks acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments:_____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

ICB and CCB checks performed for all applicable analyses? (Levels D, E) ..... Yes No N/A
ICB and CCB results acceptable? (Levels D, E) ..... Yes No N/A
Laboratory blanks analyzed? ..... Yes No N/A
Laboratory blank results acceptable? ..... Yes No N/A
Field blanks analyzed? (Levels C, D, E) ..... Yes No N/A
Field blank results acceptable? (Levels C, D, E) ..... Yes No N/A
Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: _____

4. ACCURACY (Levels C, D, and E)

MS/MSD samples analyzed? ..... Yes No N/A
MS/MSD results acceptable? ..... Yes No N/A
MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A
MS/MSD standards expired? (Levels D, E) ..... Yes No N/A
LCS/BSS samples analyzed? ..... Yes No N/A
LCS/BSS results acceptable? ..... Yes No N/A
Standards traceable? (Levels D, E) ..... Yes No N/A
Standards expired? (Levels D, E) ..... Yes No N/A
Transcription/calculation errors? (Levels D, E) ..... Yes No N/A
Performance audit sample(s) analyzed? ..... Yes No N/A
Performance audit sample results acceptable? ..... Yes No N/A

Comments: LCS - Silicon (177%) - J all
MS - antimony (313%) Silicon (-1%) Zinc (1447%) - J all
No PA

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

Duplicate RPD values acceptable?	(Yes)	No	N/A
Duplicate results acceptable?	(Yes)	No	N/A
MS/MSD standards NIST traceable? (Levels D, E)	Yes	No	(N/A)
MS/MSD standards expired? (Levels D, E)	Yes	No	(N/A)
Field duplicate RPD values acceptable?	Yes	No	(N/A)
Field split RPD values acceptable?	Yes	No	(N/A)
Transcription/calculation errors? (Levels D, E)	Yes	No	(N/A)

Comments: arsenic (182%) lead (183%) -J

6. ICP QUALITY CONTROL (Levels D and E)

ICP serial dilution samples analyzed?	Yes	No	N/A
ICP serial dilution %D values acceptable?	Yes	No	N/A
ICP post digestion spike required?	Yes	No	N/A
ICP post digestion spike values acceptable?	Yes	No	N/A
Standards traceable?	Yes	No	N/A
Standards expired?	Yes	No	N/A
Transcription/calculation errors?	Yes	No	N/A

Comments:

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

7. FURNACE AA QUALITY CONTROL (Levels D and E)

Duplicate injections performed as required? ..... Yes No N/A
Duplicate injection %RSD values acceptable? ..... Yes No N/A
Analytical spikes performed as required? ..... Yes No N/A
Analytical spike recoveries acceptable? ..... Yes No N/A
Standards traceable? ..... Yes No N/A
Standards expired? ..... Yes No N/A
MSA performed as required? ..... Yes No N/A
MSA results acceptable? ..... Yes No N/A
Transcription/calculation errors? ..... Yes No N/A

Comments: _____

8. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A
Sample holding times acceptable? ..... Yes No N/A

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

9. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

Results reported for all requested analyses? ..... Yes No N/A

Results supported in the raw data? (Levels D, E) ..... Yes No N/A

Samples properly prepared? (Levels D, E) ..... Yes No N/A

Detection limits meet RDL? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: _____

Appendix 6

Additional Documentation Requested by Client

Client: Washington Closure Hanford

Job Number: 280-28967-1
Sdg Number: J01506

Method Blank - Batch: 280-120257

Method: 6010B
Preparation: 3050B

Lab Sample ID:	MB 280-120257/1-A	Analysis Batch:	280-120581	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-120257	Lab File ID:	25A3051812.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	05/18/2012 2127	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	05/18/2012 1400				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Aluminum	1.6	U	1.6	5.0
Antimony	0.38	U	0.38	0.60
Arsenic	0.66	U	0.66	1.0
Barium	0.076	U	0.076	0.50
Beryllium	0.033	U	0.033	0.20
Boron	0.98	U	0.98	2.0
Cadmium	0.041	U	0.041	0.20
Calcium	14.1	U	14.1	50.0
Chromium	0.058	U	0.058	0.20
Cobalt	0.10	U	0.10	1.0
Copper	0.22	U	0.22	1.0
Iron	3.8	U	3.8	5.0
Lead	0.27	U	0.27	0.50
Magnesium	3.7	U	3.7	20.0
Manganese	0.10	U	0.10	1.0
Molybdenum	0.26	U	0.26	2.0
Nickel	0.12	U	0.12	4.0
Potassium	41.0	U	41.0	300
Selenium	0.86	U	0.86	1.0
Silicon	5.7	U	5.7	10.0
Silver	0.16	U	0.16	0.20
Sodium	59.0	U	59.0	120
Vanadium	0.094	U	0.094	2.0
Zinc	0.40	U	0.40	1.0

Client: Washington Closure Hanford

Job Number: 280-28967-1
Sdg Number: J01506

Lab Control Sample - Batch: 280-120257

Method: 6010B
Preparation: 3050B

Lab Sample ID:	LCS 280-120257/2-A	Analysis Batch:	280-120581	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-120257	Lab File ID:	25A3051812.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1 g
Analysis Date:	05/18/2012 2129	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	05/18/2012 1400				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	200	192.4	96	82 - 116	
Antimony	50.0	48.43	97	82 - 110	
Arsenic	100	96.77	97	85 - 110	
Barium	200	204.3	102	87 - 112	
Beryllium	5.00	4.88	98	84 - 114	
Boron	100	95.88	96	81 - 110	
Cadmium	10.0	10.18	102	87 - 110	
Calcium	5000	4819	96	82 - 114	
Chromium	20.0	20.63	103	84 - 114	
Cobalt	50.0	50.04	100	87 - 110	
Copper	25.0	27.07	108	88 - 110	
Iron	100	104.7	105	87 - 120	
Lead	50.0	51.41	103	86 - 110	
Magnesium	5000	5051	101	90 - 110	
Manganese	50.0	51.67	103	88 - 110	
Molybdenum	100	103.9	104	86 - 110	
Nickel	50.0	50.29	101	87 - 110	
Potassium	5000	4968	99	89 - 110	
Selenium	200	199.8	100	83 - 110	
Silicon	1000	170.6	17	10 - 70	
Silver	5.00	5.20	104	87 - 114	
Sodium	5000	5261	105	90 - 112	
Vanadium	50.0	52.50	105	88 - 110	
Zinc	50.0	49.51	99	76 - 114	

Client: Washington Closure Hanford

Job Number: 280-28967-1
Sdg Number: J01506

Matrix Spike - Batch: 280-120257

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-28967-1	Analysis Batch:	280-120581	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-120257	Lab File ID:	25A3051812.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.12 g
Analysis Date:	05/18/2012 2138	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	05/18/2012 1400				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Spike Amount	Result	% Rec.	Limit	Qual
Aluminum	11100		181	14420	1813	50 - 200	4
Antimony	0.38	U	45.2	13.79	31	20 - 200	
Arsenic	6.4		90.3	82.93	85	76 - 111	
Barium	127		181	287.4	89	52 - 159	
Beryllium	0.43		4.52	4.32	86	72 - 105	
Boron	3.1		90.3	76.85	82	75 - 107	
Cadmium	0.32		9.03	8.56	91	40 - 130	
Calcium	4320		4520	9399	113	43 - 165	
Chromium	12.8		18.1	31.06	101	70 - 200	
Cobalt	8.4		45.2	46.98	85	72 - 106	
Copper	19.7		22.6	39.60	88	37 - 187	
Iron	26900		90.3	26160	-836	70 - 200	4
Lead	20.7		45.2	63.29	94	70 - 200	
Magnesium	5040		4520	9485	98	64 - 145	
Manganese	535		45.2	542.2	17	40 - 200	4
Molybdenum	0.26	U	90.3	78.71	87	75 - 103	
Nickel	12.8		45.2	53.18	89	61 - 126	
Potassium	2390		4520	6758	97	56 - 172	
Selenium	0.85	U	181	155.4	86	76 - 104	
Silicon	538		903	529.1	-1	20 - 200	N
Silver	0.16	U	4.52	4.27	94	75 - 141	
Sodium	280		4520	4832	101	78 - 111	
Vanadium	57.5		45.2	101.8	98	50 - 169	
Zinc	102		45.2	167.6	144	70 - 200	

Client: Washington Closure Hanford

Job Number: 280-28967-1
Sdg Number: J01506

Duplicate - Batch: 280-120257

Method: 6010B
Preparation: 3050B

Lab Sample ID:	280-28967-1	Analysis Batch:	280-120581	Instrument ID:	MT_025
Client Matrix:	Solid	Prep Batch:	280-120257	Lab File ID:	25A3051812.asc
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	1.06 g
Analysis Date:	05/18/2012 2136	Units:	mg/Kg	Final Weight/Volume:	100 mL
Prep Date:	05/18/2012 1400				
Leach Date:	N/A				

Analyte	Sample Result/Qual		Result	RPD	Limit	Qual
Aluminum	11100		11540	3	40	
Antimony	0.38	U	0.36	NC	40	U
Arsenic	6.4		140.1	182	30	M
Barium	127		119.7	6	30	
Beryllium	0.43		0.439	2	30	
Boron	3.1		2.69	12	30	
Cadmium	0.32		0.324	0.06	30	
Calcium	4320		4455	3	30	
Chromium	12.8		13.75	7	40	
Cobalt	8.4		8.17	3	30	
Copper	19.7		18.27	7	30	
Iron	26900		25290	6	40	
Lead	20.7		460.5	183	40	M
Magnesium	5040		5021	0.4	30	
Manganese	535		449.2	17	40	
Molybdenum	0.26	U	0.25	NC	30	U
Nickel	12.8		12.52	2	30	
Potassium	2390		2482	4	40	
Selenium	0.85	U	0.82	NC	30	U
Silicon	538		661.1	21	40	
Silver	0.16	U	0.15	NC	30	U
Sodium	280		282.5	0.9	30	
Vanadium	57.5		55.84	3	30	
Zinc	102		108.8	6	40	

Client: Washington Closure Hanford

Job Number: 280-28967-1
Sdg Number: J01506

Method Blank - Batch: 280-120779

Method: 7471A
Preparation: 7471A

Lab Sample ID:	MB 280-120779/1-A	Analysis Batch:	280-121070	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-120779	Lab File ID:	120522aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.6 g
Analysis Date:	05/22/2012 1604	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	05/22/2012 1210				
Leach Date:	N/A				

Analyte	Result	Qual	MDL	RL
Mercury	0.0055	U	0.0055	0.017

Lab Control Sample - Batch: 280-120779

Method: 7471A
Preparation: 7471A

Lab Sample ID:	LCS 280-120779/2-A	Analysis Batch:	280-121070	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-120779	Lab File ID:	120522aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.6 g
Analysis Date:	05/22/2012 1610	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	05/22/2012 1210				
Leach Date:	N/A				

Analyte	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.417	0.422	101	87 - 111	

Matrix Spike - Batch: 280-120779

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-28967-1	Analysis Batch:	280-121070	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-120779	Lab File ID:	120522aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.57 g
Analysis Date:	05/22/2012 1617	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	05/22/2012 1210				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Spike Amount	Result	% Rec.	Limit	Qual
Mercury	0.066	0.444	0.558	111	87 - 111	

Client: Washington Closure Hanford

Job Number: 280-28967-1
Sdg Number: J01506

Duplicate - Batch: 280-120779

Method: 7471A
Preparation: 7471A

Lab Sample ID:	280-28967-1	Analysis Batch:	280-121070	Instrument ID:	MT_033
Client Matrix:	Solid	Prep Batch:	280-120779	Lab File ID:	120522aa.txt
Dilution:	1.0	Leach Batch:	N/A	Initial Weight/Volume:	0.54 g
Analysis Date:	05/22/2012 1615	Units:	mg/Kg	Final Weight/Volume:	50 mL
Prep Date:	05/22/2012 1210				
Leach Date:	N/A				

Analyte	Sample Result/Qual	Result	RPD	Limit	Qual
Mercury	0.066	0.0549	18	20	